

SECTOR

REPORT 

# Power Generation Scenario

Ashish Apte  
e.info@idbicapital.com

Rabindra Nath Nayak  
rabindra.nayak@idbicapital.com

**Nifty: 3822; Sensex: 13072**

## Industry

### ■ Power scenario in India

The per capita consumption of electricity is around 606 Kwh in India. India is presently the sixth-greatest electricity generating country and accounts for about 4% of the world's total annual electricity generation. India is also currently ranked sixth in annual electricity consumption, accounting for about 3.5% of the world's total annual electricity consumption. The rapid growth in Indian economy would require an exponential growth in the power generation.

Consequent to enactment of Electricity Act, 2003, there is some progress on regulation front but the peak demand shortage continues at 12-13% and energy gap at 7-8%. The government has so far had a monopoly in power generation, transmission and distribution but now many big private players like Tata Power and Reliance Energy are imparting major role in generating, transmitting and distributing electricity. Presently, total installed capacity in India is 127,673 MW with State sector leading primarily with 55% and private sector with least generating capacity of 12.1%. Major sources for generating electricity are Thermal and Hydro.

**Table 1: Generation statistics**

(bn kwh)

	FY06	FY05	% Change
Total units	617	588	4.9
Thermal	514	503	2.2
Hydel	101	85	19.4
Power shortage (%)	8.4	12	-

Source: CMIE

### ● Thermal

Thermal is the most important source of fuel in power generation in India having installed capacity 83,772 MW which accounts for 66 % in total. 46,114 MW capacity has been planned to build in XI plan by Central, State and private sector. Coal-Domestic coal remains the primary source in electricity generation as it accounts for 55.60% in electricity generation in India. Estimated reserve of coal is 22,540 MT in India. Import of coal will be on moderate scale for coastal locations only. Major coal bearings states are Chhattisgarh, Orissa and Jharkhand which accounts for 70% of the coal reserve in India. 1,000 MW power plants would consume about 600 tones of coal per hour of operation. Captive mining is permitted for private sector. As of now 148 coal blocks have been identified.

### ● Gas

Gas based power plant are relatively new but fast expanding despite lot of uncertainty about its pricing and availability. Construction of gas fired plants is faster and cheaper than coal fired plants. New gas plants can come online in 2 to 3-years. Currently, estimated gas reserve in India is 4,076 MT and it accounts for about 9.90% of total electricity production in India.

- **Nuclear**

India has not been able to tap this source optimally despite having the nuclear capability. Currently fourteen nuclear power plants are in operation with installed capacity 3,900 MW contributing to 3% in total power generating capacity. It is estimated that capital cost for nuclear plant is around Rs.60-65m/MW against Rs.40-45m for thermal plants and even lesser for gas based plants. However, nuclear plants have a longer life, which reduces the rate of depreciation. One ton of natural uranium can produce more than 40m units of electricity. The US has approved nuclear co-operation which includes shipping nuclear technology and fuel to India. This would encourage the commissioning of more nuclear based power plants in the long run. The Government at present plans to add 5,900 MW nuclear power generating capacity in XI plan.

**Table 2: Nuclear fuels**

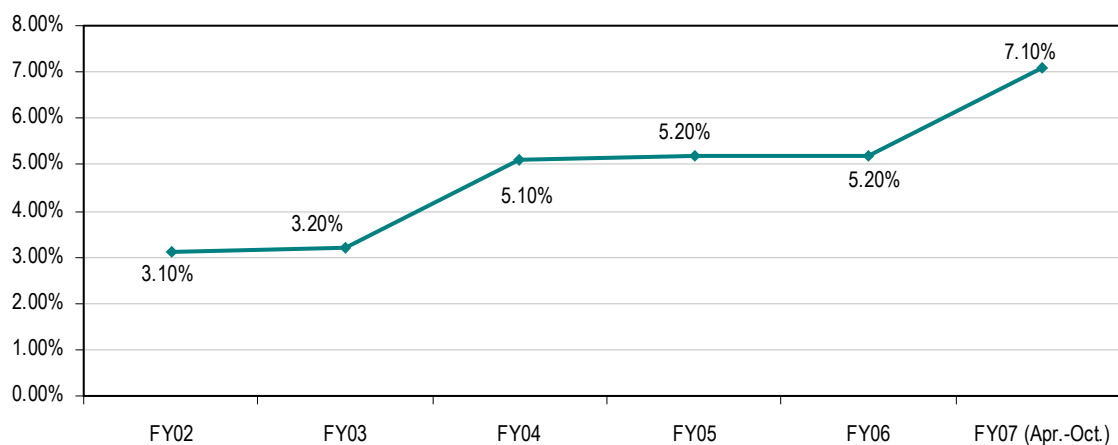
Resources	Availability (Tonnes)
Uranium-metal	61,000
Thorium-metal	2,25,000

Source: Industry data

- **Hydel**

Hydel power is the most important renewable source of power, involving high initial costs with one of the lowest lifetime cost of power generation. India is endowed with hydro-potential of about 150,000 MW of which 33,600 MW has been tapped. The variable cost of generation of power through hydel sources is negligible. Besides, this source is the cleanest form of power, emitting no green house gas or other pollutants. But its role in power sector has fallen due to social and political issues instead of economic considerations. Other Reasons are its capital intensive nature, longer gestation period, feasibility requirements, geological uncertainties etc. The Govt is mulling with a policy for developing hydro-power capacity under which projects possibly of 2000-3000 MW each would be drawn up. The government has outlined to add 17,189 MW of capacity in XI plan period.

**Figure 1: Electricity generated over the years**



Source: Company reports; IDBI Capital Market Services

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Registered Office: 5th floor, Mafattal Centre, Nariman Point, Mumbai – 400 021. Phones: (91-22) 6637 1212 Fax: (91-22) 2288 5850 Email: info@idbicapital.com

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